Name _____

Keystone Warm-ups
Chapter 15: Genetic Engineering

Copy down all 4 answer choices for the daily warm-up from the board in the space below its question. Choose the best answer by circling its letter. Then, after we go over it, write the correct answer in the block provided on the front of the packet.

1	2	3	4	5
6	7	8	9	

1. The flounder is a species of fish that can live in very cold water. The fish produces an "antifreeze" protein that prevents ice crystals from forming in its blood. The DNA for this protein has been identified. An enzyme is used to cut and remove this section of flounder DNA that is then spliced into the DNA of a strawberry plant. As a result, the plant can now produce a protein that makes it more resistant to the damaging effects of frost. This process is known as

(A) sorting of genes

(B) genetic engineering

(C) recombination of chromosomes

(D) mutation by deletion of genetic material

2. Plants in species A cannot fight most fungal infections. Plants in species B make a protein that kills many fungi. One possible way for humans to produce species A plants with the ability to synthesize this protein would be to

(A) mutate fungal DNA and introduce the mutated DNA into species B using a virus

(B) add DNA from species B into the soil around species A

(C) insert the gene for the protein from species B into a chromosome in species A

(D) cross species A and a fungus to stimulate the synthesis of this protein

3. Individual cells can be isolated from a mature plant and grown with special mixtures of growth hormones to produce a number of genetically identical plants. This process is known as

(A) cloning

(B) meiotic division

(C) recombinant DNA technology

(D) selective breeding

4. To produce large tomatoes that are resistant to cracking and splitting, some seed companies use the pollen from one variety of tomato plant to fertilize a different variety of tomato plant. This process is an example of

(A) selective breeding

(B) DNA sequencing

(C) direct harvesting

(D) cloning

5. Which phrase does NOT describe cells cloned from a carrot?

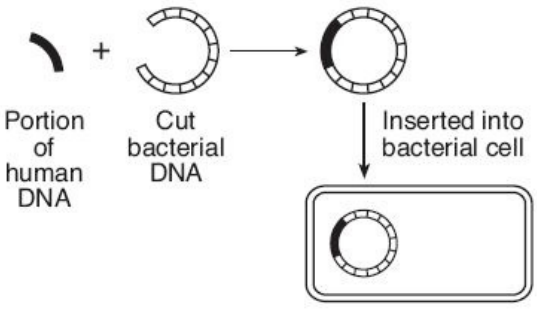
(A) they are genetically identical

(B) they are produced sexually

(C) they have the same DNA codes

(D) they have identical chromosomes

6. The diagram below represents a technique used in some molecular biology laboratories.



This technique is a type of

(A) chromatography

(B) gel electrophoresis

(C) direct harvesting

(D) genetic engineering

7. The pedigree of Seattle Slew, a racehorse considered by some to be one of the fastest horses that ever lived, includes very fast horses on both his mother's side and his father's side. Seattle Slew most likely was a result of

(A) environmental selection

(B) alteration of DNA molecules

(C) selective breeding

(D) a sudden mutation

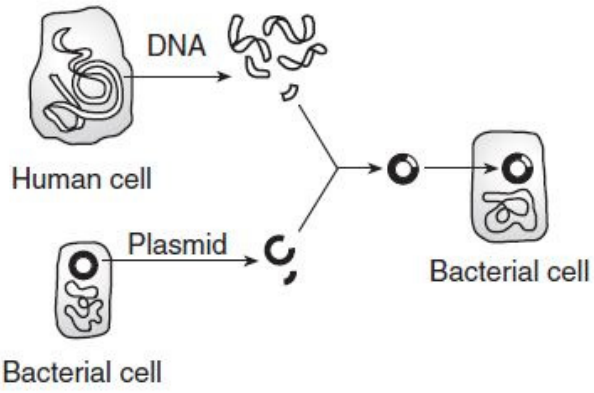
8. Which set of terms correctly identifies the procedure shown in the diagram below and a substance produced by this procedure?

(A) selective breeding - growth hormone

(B) cloning - antibiotics

(C) genetic engineering - insulin

(D) replicating - glucose



9. Genetic engineering has led to genetically modified plants that resist insect pests and bacterial and fungal infections. Which outcome would most likely be a reason why some scientists recommend caution in planting genetically modified plants?

(A) unplanned ecosystem interactions

(B) reduced pesticide and herbicide use

(C) improved agricultural yield and profit

(D) increased genetic variation and diversity